

Work Order ID 48576

Friday, June 26, 2009 9:16:10 AM



Page 1

Item ID: D350-748-101

Accept



Setup Start



Revision ID: D

Stop



Item Name: Crosstube Installation, High Fwd

Start Date: 7/15/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 8/3/2009 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

N/A

Rev D

100

0.00



DOCUMENT CONTROL

DC

Memo

Photocopy bluefile & type labels per PPPD350-748-101

CHG001

Document Control

for BG 09/09/01
5 09/01/02

110

0.00



BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D350-748-141 using CNC bender program D350F and
Folio FT _____*DP 9-7-16*

120

0.00



QC15- Crosstube Dimensional Check

QC

Memo

0.00

Quality Control

1 _____ *10/27/20***B 48576**

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Page 2

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Required Date: 8/3/2009 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

0.00



Crosstubes

Crosstubes

Crosstubes

Memo

0.00

1-Drill Tube as per Dwg D350-748-141 Using DT8876 A,B & C Drill Jigs, ☐
Set-up drill table as per QSI 010 ☐ 2-Deburr ☐ 3-Engrave Part # and Batch # as per
Dwg D350-748-141 ☐ 4-Remove all marks from tube within limits of D350-748-
141 ☐ 5- Apply a light coat of

MB/V
09-07-20ANM 9-7-21
- M109956 AM 9-7-21

140

0.00



QC5- Inspect part completeness to step on W/O

QC

Quality Control

Memo

0.00

CHECK 10 DEG HOLES WITH DT8876E(EUROCOPTER CLAMP)

=> 50767/21

42 0

150

0.00



Outsource process-Cadplate per QSI017 4.1.9.1

Outsource3

Memo

0.00

Issue P/O: 10132 ☐ Stress relief at 375° for 5 hours ☐ Magnetic
Particle Inspect per ASTM E1444 ☐ Cadum Plate per AMS-QQ-P-416B, Class
1, Type 2 ☐ Embrittle relief at 375° for 8 hours, Chromate Treat ☐ Possible
Supplier: Southwest United Industries ☐ Ens

U 99-07-27

Work Order ID 48576

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Page 3

Item ID: D350-748-101

Accept



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Stop



Item Name: Crosstube Installation, High Fwd

Start Date: 7/15/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 8/3/2009 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 	Receive & Inspect for Damage & Mat'l Certs	0.00							
Packaging	Memo	0.00							
Packaging	Ensure certificate of conformity is attached								
170 	QC5- Inspect part completeness to step on W/O	0.00							
QC	Memo	0.00							
Quality Control									
180 	SprayPaint	0.00							
SprayPaint	Memo	0.00							
Spray Painting	1-Prime inside crosstube as per QSI 005 4.2 2-Prime Outside of Tube as per Dart QSI 005 4.2								

prime 8:00 10:30
paint 3:00 4:30

12/9/18 C

8 07/08/25

AT 09.08.25

Work Order ID 48576

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Page 4

Item ID: D350-748-101

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Setup Start

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Start Date: 7/15/2009 Start Qty: 1.00

Cust Item ID:

Required Date: 8/3/2009 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

190

QC14- Inspect Spray Paint

0.00



QC

Memo

0.00

Quality Control

Then, Wrap in plastic bag to protect from scratches

1 08-08-26

200

Crosstubes

0.00



Crosstubes

Memo

0.00

Crosstubes

1-Install Ground wire Insert, then insert screw and washer
2-Install Abrasion strips as per Dwg D350-748-141 & QSI 035.
3-Install supports Using Dt8876 as per Dwg D350-748-141, Torque to 60-80 IN-LBS

08 08 24

210

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

08 09 06/31

46 16

Work Order ID 48576

Friday, June 26, 2009 9:16:10 AM

Page 5

Item ID: D350-748-101

Accept

Setup Start

Revision ID: D

Stop

Item Name: Crosstube Installation, High Fwd

Start Date: 7/15/2009 Start Qty: 1.00

Cust Item ID:

Required Date: 8/3/2009 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

220

Pick Kit

0.00



Packaging

Memo

0.00

Packaging

9/9/2 1050

230

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

Quality Control

2) 8/7/09/02

10 0

240

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D350-748-101
101 ☐ Location: _____ ☐ PPP Rev: _____

B

9/9/2 10 21

Work Order ID 48576

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Page 6

Item ID: D350-748-101

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Item Name: Crosstube Installation, High Fwd

Stop



Start Date: 7/15/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 8/3/2009 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

250

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

09/09/03

MF 09-09-03

Picklist Print

Friday, June 26, 2009 9:16:09 AM

Page 1

Work Order ID: 48576

Parent Item: D350-748-101RevD

Parent Item Name: Crosstube Installation, High Fwd

Comments:

Start Date: 7/15/2009

Required Date: 8/3/2009

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
S ✓ MS247215 Nut		Purchased	No			120	Each	0.0000	4.0000			SP
✓ ALS4-1032-225 Insert		Purchased	No			200	Each	0.0000	1.0000			
✓ AN960JD10 Washer		Purchased	No			200	Each	0.0000	1.0000			
✓ D2856-400RevA Abrasion Strip		Manufactured	No			200	f	0.0000	1.2432			
✓ D3502-1RevB Support		Manufactured	No			200	Each	0.0000	2.0000			
D350-748- J41TRNRevD	B47160	Manufactured	No			200	Each	0.0000	1.0000			
Crosstube Turning Detail												
✓ MS21920-20 Clamp (per MIL-DTL-8783C)		Purchased	No			200	Each	0.0000	2.0000			
✓ AN4-6A Bolt		Purchased	No			230	Each	0.0000	16.0000			
✓ AN5-32A Bolt		Purchased	No			230	Each	0.0000	4.0000			

M111636

110768

111668

50593

47120

47160

M111280

M111279

M111916

9/9/2 108

DP 9-7-16

Picklist Print

Page 2

Friday, June 26, 2009 9:16:09 AM

Work Order ID: 48576

Parent Item: D350-748-101RevD

Parent Item Name: Crosstube Installation, High Fwd






Start Date: 7/15/2009

Required Date: 8/3/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
S ✓ AN960JD416 		Purchased	No			230	Each	0.0000	32.0000			
Washer S ✓ AN960JD516 		Purchased	No			230	Each	0.0000	8.0000			
Washer S ✓ D3501-1RevA 		Manufactured	No			230	Each	0.0000	16.0000			
Bushing S ✓ MS21042L4 		Purchased	No			230	Each	0.0000	24.0000			
Nut ✓ MS27039-1-10 		Purchased	No			230	Each	0.0000	1.0000			
Screw												

M111914 SP
M112082 SP
B45402 SP
110507 SP 9/9/2 @
111425 M 9-8-31

S ✓ AN4-41A M112082 SP
S ✓ D3500-1 B47350 9/9/2 @ SP

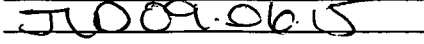
Friday, June 26, 2009 9:16:09 AM

Shop Packet Print

Page 2

Date: Monday, 15/06/2009 9:49:55 AM
User: Julie Dawson

Process Sheet

Customer :	CU-DAR001 Dart Helicopters Services	Drawing Name :	350/355 AS X-TUBE FWD
Job Number :	48576		
Estimate Number :	12485		
P.O. Number :		Part Number :	D350748101
This Issue :	15/06/2009	S.O. No. :	
Prsht Rev. :	NC	Drawing Number :	N/A
First Issue :	//	Project Number :	N/A
Previous Run :	48575	Drawing Revision :	D
	Type :	Material :	
	CROSSTUBES	Due Date :	10/07/2009
Written By :		Qty:	1 Um: Each
Checked & Approved By :			
Comment :	Est Rev:A New Issue 06-07-05 JLM Est Rev:B Update qty of MS21042L5 06-09-12 KJ Est Rev:C Rev B 07-11-15 DD Est Rev D Combined manufacturing 08.04.02 EC verified by: DD Est Rev:E 08-06-24 revD as per dwg DD verified by:EC		

Additional Product

Job Number:



Seq. #: ☒ **Machine Or Operation:** **Description :**

1.0 ☒ DC DOCUMENT CONTROL



Comment: Photocopy bluefile & type labels per PPPD350-748-101 CHG001

2.0 ☒ D350748141TRN Crosstube Turning Detail



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)
CROSSTUBE TURNING DETAIL

batch _____

3.0 ☒ BENDING BENDING MACHINE - SKIDTUBES



Comment: BENDING MACHINE

Bend tube as per Dwg D350-748-141 using CNC bender program D350F and Folio FT

MB

09-07-20

4.0 ☒ QC15 DIMENSIONAL CHECK OF X-TUBES



Comment: DIMENSIONAL CHECK OF X-TUBES

5.0 ☒ CROSSTUBES CROSSTUBES RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill Tube as per Dwg D350-748-141 Using DT8876 A,B & C Drill Jigs,
Set-up drill table as per QSI 010

2-Deburr

11 07-7-20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 15/06/2009 9:49:55 AM
User: Julie Dawson

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE FWD

Job Number: 48576

Part Number: D350748101

Job Number:



Seq. #:

Machine Or Operation:

Description :

3-Engrave Part # and Batch # as per Dwg D350-748-141

4 9-7-20

4-Remove all marks from tube within limits of D350-748-141

5- Apply a light coat of LPS3 on the interior of tube

Batch: *M109956*

AWM 9-7-21

6.0 ☒ QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

CHECK 10 DEG HOLES WITH DT8876E(EUROCOPTER CLAMP)

Sordusky @

7.0 ☒ OUTSIDE SERV.11

OUTSIDE SERVICE -CROSSTUBES



Comment: Sub-Contracting OUTSIDE SERVICES

Issue P/O: _____

Stress relief at 375° for 5 hours

Magnetic Particle Inspect per ASTM E1444

Cadium Plate per AMS-QQ-P-416B, Class 1, Type 2

Embrittle relief at 375° for 8 hours, Chromate Treat

Possible Supplier: Southwest United Industries

Ensure Certificate of Conformity is attached

8.0 ☒ PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure certificate of conformity is attached

9.0 ☒ QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

10.0 ☒ SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING

1-Prime inside crosstube as per QSI 005 4.2

2-Prime Outside of Tube as per Dart QSI 005 4.2

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 15/06/2009 9:49:55 AM
User: Julie Dawson

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE FWD

Job Number: 48576

Part Number: D350748101

Job Number:



Seq. #:

Machine Or Operation:

Description :

11.0

✓ QC14

INSPECT SPRAY PAINT



Comment: Inspect Spray Paint

Then, Wrap in plastic bag to protect from scratches

12.0

✓ D35021

Support



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

SUPPORT

Batch: _____

13.0

✓ D2856400

Abrasion Strip



Comment: Qty.: 1.2401 f(s)/Unit Total : 1.2401 f(s)

Abrasion Strip 7.10" long x2

Batch: _____

14.0

✓ ALS41032225

Insert



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Insert

Batch: _____

15.0

✓ AN960JD10

Washer



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Washer

Batch: _____

16.0

✓ MS2192020

Clamp (per MIL-DTL-8783C)



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Clamp (per MIL-DTL-8783C)

Batch: _____

17.0

✓ MS27039110

Screw



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Screw

Batch: _____

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 15/06/2009 9:49:55 AM
User: Julie Dawson

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE FWD

Job Number: 48576

Part Number: D350748101

Job Number:



Seq. #:

Machine Or Operation:

Description :

18.0



CROSSTUBES

CROSSTUBES RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Install Ground wire Insert, then insert screw and washer

2-Install Abrasion strips as per Dwg D350-748-141 & QSI 035.

3-Install supports Using Dt8876 as per Dwg D350-748-141, Torque to 60-80 IN-LBS

19.0



QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

20.0



PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Pick Packing Kit

21.0



D35001

Saddle



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

350 SADDLE

Batch: _____

22.0



D35011

Bushing



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

BUSHING

Batch: _____

23.0



AN46A

Bolt



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

Bolt

Batch: _____

24.0



AN441A

bolt



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)

bolt

Batch: _____

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 15/06/2009 9:49:55 AM
User: Julie Dawson

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE FWD

Job Number: 48576

Part Number: D350748101

Job Number:



Seq. #:

Machine Or Operation:

Description :

25.0

✓ AN532A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Bolt

Batch: _____

26.0

✓ AN960JD416

Washer



Comment: Qty.: 32.0000 Each(s)/Unit Total : 32.0000 Each(s)

Washer

Batch: _____

27.0

✓ AN960JD516

Washer



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)

Washer

Batch: _____

28.0

✓ MS21042L4

Nut



Comment: Qty.: 24.0000 Each(s)/Unit Total : 24.0000 Each(s)

Nut

Batch: _____

29.0

✓ MS21042L5

Nut



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Nut

Batch: _____

30.0

✓ QC4

INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

31.0

✓ PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D350-748-101

Location: _____

PPP Rev: _____

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 15/06/2009 9:49:55 AM
User: Julie Dawson

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE FWD

Job Number: 48576

Part Number: D350748101

Job Number:



Seq. #:

Machine Or Operation:

Description :

32.0

✓ QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

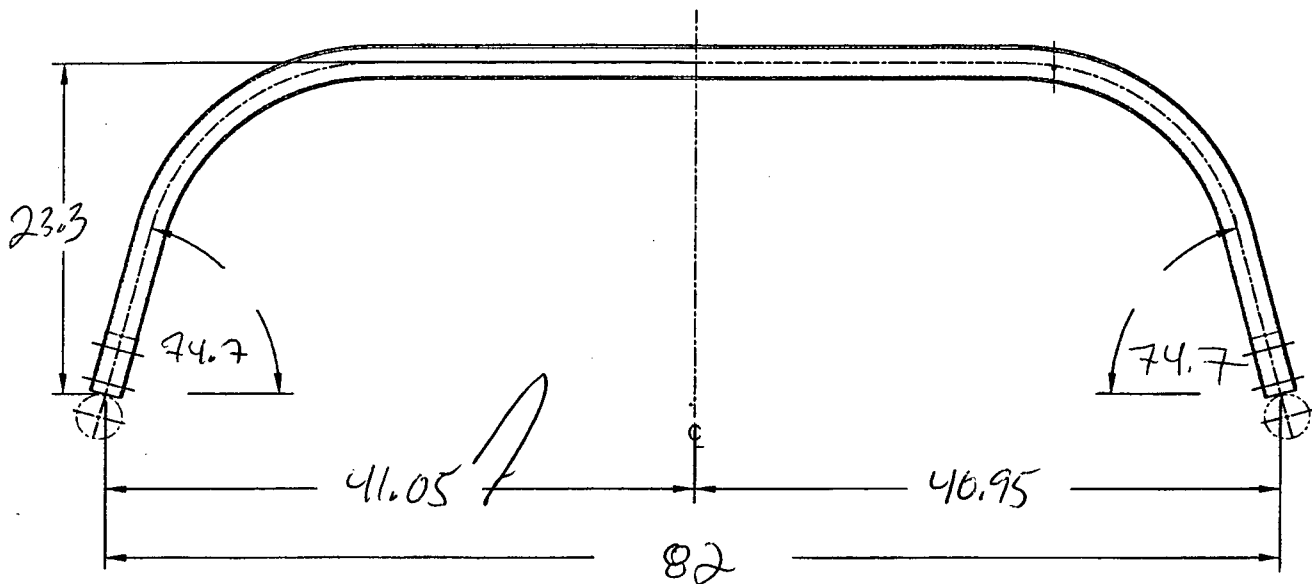
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order: 48576
Description: Crosstube High Fwd (AS350/355)		Part Number: D350-748-101
Inspection Dwg: D350-748-141 Rev: D		Page 1 of 1

Required Dimension	Min	Max
Height	23.13	23.37
1/2 Span	40.78	41.02
Angle	75	77
Total Span	81.56	82.04



Comments
0.250" twist from cuff to cuff when set flat on the drill jig table.

QC15 Inspection	CS/MLL
Date	09.07.10

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	<i>[Signature]</i>

DART

RELEASED

06.10.31

DESIGN QP	DRAWN BY QP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED H	APPROVED H	DRAWING NO. D350-748-141	REV. D SHEET 1 OF 3
DATE 06.10.31		TITLE CROSSTUBE (AS 350/355 HI FWD) SCALE NTS	
A	06.03.31	NEW ISSUE	
B	06.06.30	ADD D6017-115 & PRIME AND PAINT	
C	06.08.14	ADD CAD PLATING	
D	06.10.31	MAG. PARTICLE AND CAD PLATE AS MFD.	

QTY	P/N	DESCRIPTION
X	D350-748-141	CROSSTUBE ASSEMBLY (AS 350/355 HI FWD)
1	D6017-115	CROSSTUBE (OR D6015-125)
2	D3502-1	SUPPORT
2	D2856-400-710	ABRASION STRIP
1	AELS-1032-225	INSERT
1	AN960JD10	WASHER
2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
1	MS27039-1-10	SCREW

UNDER REVIEW

09.02.05

PER PCR #09.001

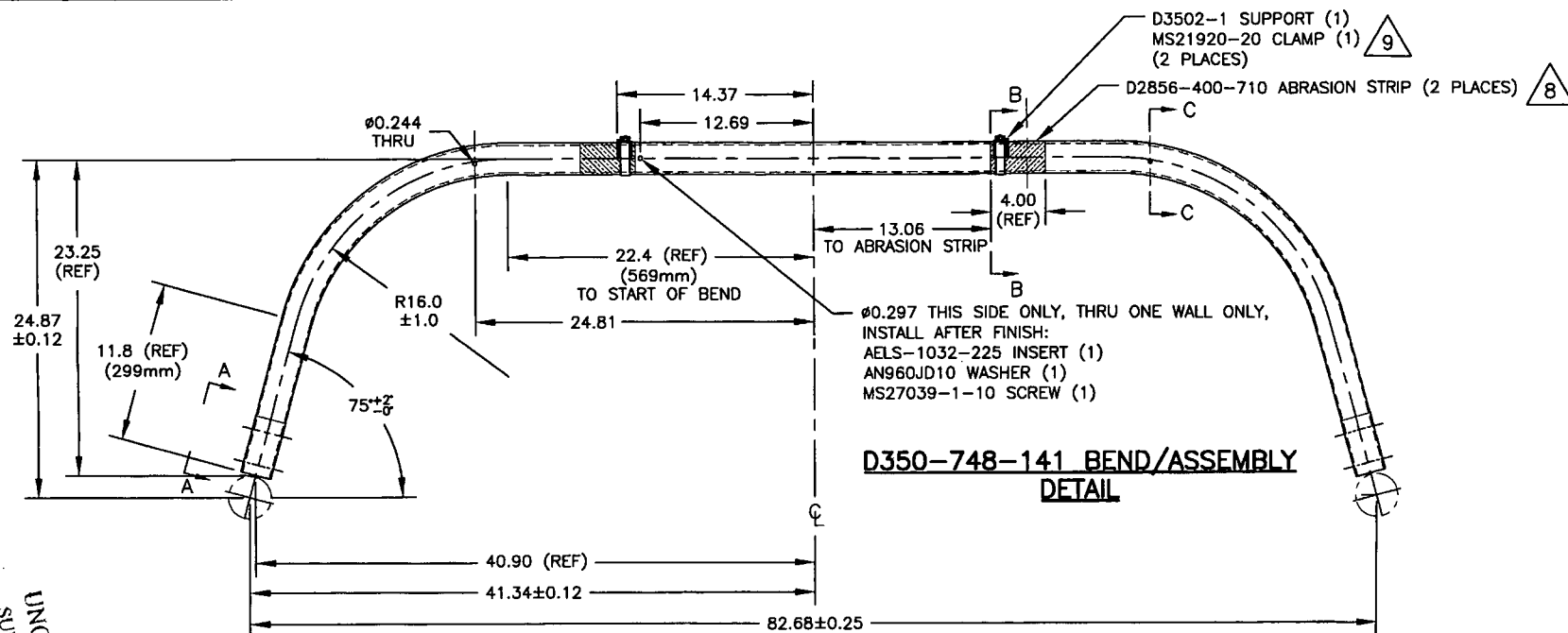
D350-748-141 CROSSTUBE:

- 1) MATERIAL: MANUFACTURED FROM D6017-115 OR D6015-125
FINISHED LENGTH = 110.27±0.06
- 2) MACHINE PER MACHINING DETAIL ON PAGE 3. BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITIONS SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 3) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 4) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 5) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING
- 6) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 7) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 8) INSTALL D2856-400-710 ABRASION STRIP WITH A GAP ON BOTTOM SIDE OF CROSSTUBE CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 9) TORQUE MS21920-20 CLAMPS 60 TO 80 IN-LB
- 10) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 11) ALL DIMENSIONS ARE IN INCHES
- 12) PART IS SYMMETRIC ABOUT CENTERLINE EXCEPT FOR Ø0.297 HOLE.

OK 06.10.31

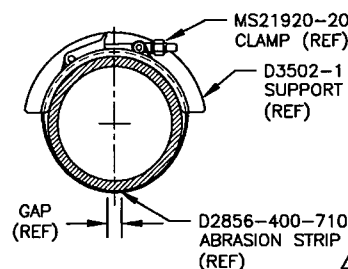
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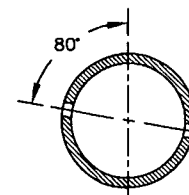
SECTION B-B

SCALE 1:2



SECTION C-C

SCALE 1:2



UNDER REVIEW

09.02.05

UNDER REVIEW

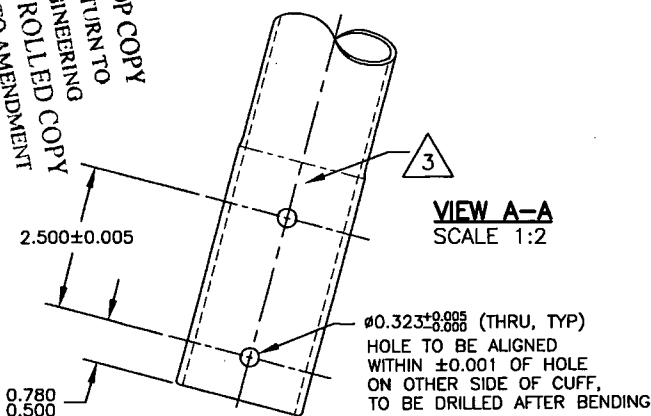
02.16

OK 09.10.22

RELEASED

06.10.31

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DESIGN	90	DRAWN BY	90	DART	DART AEROSPACE LTD. HARRISBURG, ONTARIO, CANADA	REV. D
CHECKED	#	APPROVED	#	DRAWING NO.	D350-748-141	SHEET 2 OF 3
DATE	06.10.31	TITLE	CROSSTUBE (AS 350/355 HI FWD)	SCALE	1:2	

**CERTIFICATE OF
CONFORMANCE**

**CADORATH PLATING CO. LTD.
2150 LOGAN AVENUE
WINNIPEG, MANITOBA R2J-0J1**

DATE: Aug-14-2009

CONSIGNED TO: Dart Aerospace Ltd.
1270 Aberdeen St.
Hawksbury, ON K6A 1K7

W/O #: 88574

INVOICE #: 45705

**CONTRACT OR
PURCHASE ORDER # 513963**

DESCRIPTION: SKID

QTY 1

P/N # d350-748-101

S/N # B48576

**STRESS RELIEF BAKE @ 375 DEG. FOR 5 HRS. BAKE HEAT CHART
#10734. MPI INSPECTED IAW ASTM-E-1444. CADMIUM PLATED IAW
AMS-QQ-P-416B, TYPE 2 YELLOW, CLASS 2. BAKE HEAT CHART
#10785.**

S
09/08/25

**CERTIFICATE: I certify that the items indicated here on have
been inspected and tested and conform to all specifications
and requirements detailed on the contract or purchase order.**

Approved Inspector:



A large, stylized handwritten signature.

5.0 PARTS LIST

Qty -101	Qty -201	Part Number	Description
X		D350-748-101	CROSSTUBE INSTALLATION, AS 350/355 HIGH FWD
	X	D350-748-201	CROSSTUBE INSTALLATION, AS 350/355 HIGH AFT
1		D350-748-141	CROSSTUBE ASSEMBLY, AS 350/355 HIGH FWD
	1	D350-748-241	CROSSTUBE ASSEMBLY, AS 350/355 HIGH AFT
*2	*2	D3502-1	SUPPORT
*2	*2	D2856-400-710	ABRASION STRIP
*1	*1	AELS-1032-225	INSERT
*2	*2	MS21920-20	CLAMP
*1	*1	MS27039-1-10	SCREW
*1	*1	AN960JD10	WASHER
4	4	D3500-1	SADDLE
16	16	D3501-1	BUSHING
16	16	AN4-6A	BOLT
8	8	AN4-41A	BOLT
4	4	AN5-32A	BOLT
32	32	AN960JD416	WASHER
8	8	AN960JD516	WASHER
24	24	MS21042L4	NUT (OR MS21042-4)
4	4	MS21042L5	NUT (OR MS21042-5)

* REFERENCE ONLY. PARTS ARE INCLUDED IN D350-748-141/241 ASSEMBLIES ABOVE

REFERENCE ONLY

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Revision: **B**

Date: 07.06.15